

09/090323
9 JUL 2001

WO 00/43525

EL591094879US

SEQUENCE LISTING

<110> Immunex Corporation

<120> NEW METALLOPROTEINASE DISINTEGRIN FAMILY MEMBERS WITH
DIAN AND POLYPEPTIDES

<130> 04260.0093 00304

<140>

<141>

<150> 60/116,670

<151> 1999-01-21

<150> 60/138,682

<151> 1999-06-14

<150> 60/155,798

<151> 1999-09-27

<160> 33

<170> PatentIn Ver. 2.1

<210> 1

<211> 129

<212> DNA

<213> Homo sapiens

<220>

<223> "n" at various positions throughout the sequence
may be any nucleotide

<400> 1

atcttttgata ccacagtgac caacaagggtc acctaaaggtg ttcaattctt tqtagecaagt 60
ctcaattgca gtatttgcgc ctgcacaaa aatctctcta caetgttcan ttgcgggcat 120
gacangctc 129

<210> 2

<211> 469

<212> DNA

<213> Homo sapiens

<400> 2

tttttgagta agaataagtc atgttttagt aaacttcca aaagaacaa aaagattctt 60
caaccacagga ggacatgtga gtcacaatac cctttaatec acaggttggc tecttggttt 120
ctggaacttt ctgctctctg taaacyatgt ggggttgta cctcctcca accagtggat 180
gtttcttcac ggggttcaatg aaaaagtctc catgtgttag ttgaaaaat caagtcaatc 240
catgcaagac aetgaagat gcaatccca cctctgtgac ctgtgtgaa acatgcaac 300
tctgtgtgaa ctgtgtgaa ctgtgtgaa ctgtgtgaa ctgtgtgaa ctgtgtgaa 360
tctgtgtgaa ctgtgtgaa ctgtgtgaa ctgtgtgaa ctgtgtgaa ctgtgtgaa 420

<212> DNA

<213> Homo sapiens

<400> 3

```

cacagagatt  tatatcttca  aaaaaaatct  aatgaatctc  ttgaatggtc  gtttggaaaa  60
gtctctttct  taqaatattc  tcaatcagtg  agtaatttca  taatataaaa  tatecttgcg  120
actgctacac  gtatctctca  tgaatctggt  catgctttag  caatgtcaca  taataaaca  180
taetgccaat  ctagggttag  gectaattgc  atcatgggt  caggacgcac  tgggtttage  240
aattgcaagt  atatctcttt  ttttaaacat  atctcttcgg  gagecaacatg  tctaaataat  300
atcccaggac  taggttatgt  gettaagaga  tglggaaca  aaattgttga  ggacaatgag  360
gaatgtgatt  gtggttccac  agaggagtgt  cagaaagatc  ggtgttgcca  atcaaattgt  420
aagttgcaac  caggtgccc  ctgtagcatt  ggaactttgt  gtcattgattg  tcggtttcgt  480
ccatctggat  acgtgtgtag  gcaggaagga  aatgaatgtg  acctgcaga  gtactgcgac  540
gggaattcaa  gtctctgccc  aaatgacgtt  tataagcagg  atggaacccc  ttgcaagtat  600
gaagcccggt  ctctcaggaa  ggggtgcaga  tcagatata  tgcagtgcc  aagcattttt  660
ggacctgatt  ccatggaggc  tcctagttag  tgctatgatg  cagttaactt  aataggtgat  720
caatttggt  actgtgagat  tacaggaatt  cgaaatttta  aaaagtgtga  aagtgcacaa  780
tcaatatgtg  gcaggttaca  gtgtataaat  gttgaaacca  tcctgattt  gccagagcat  840
acgactataa  tttctactca  tttacaggca  gaaaatctca  tgtgctgggg  cacaggctat  900
catctatcca  tgaaacccat  gggaatacct  gacctaggta  tgataaatga  tggcacctcc  960
tgtggagaag  gccgggtatg  ttttaaaaa  aattgcgtca  atagctcagt  cctgcagttt  1020
gactgtttgc  ctgagaaatg  caatacccg  ggtgtttgca  acaacagaaa  aaactgccac  1080
tgcattgatg  ggtgggcacc  tccattctgt  gaggaagtgg  ggtatggagg  aagcattgac  1140
agtgggcctc  caggactgct  cagagggggc  attccctcgt  caatttgggt  tgtgtccatc  1200
ataatgtttc  gccttatttt  attaatcctt  tcagtgtttt  ttgtgttttt  ccggcaagtg  1260
ataggaaacc  acttaaaacc  caaacaggaa  aaaatgccac  tatccaaagc  aaaaactgaa  1320
caggaagaat  ctaaaacaaa  aactgtacag  gaagaatcta  aaacaaaaac  tggacaggaa  1380
gaatctgaag  caaaaactgg  acaggaagaa  tctaaagcaa  aaactggaca  ggaagaatct  1440
aaagcaaaaa  ttgaaagtaa  acgacccaaa  gcaagaggtg  tcaagaaaca  aaaaaagtaa  1500

```

<210> 4

<211> 40

<212> PRT

<213> Homo sapiens

<220>

<223> "Xaa" at various positions throughout the sequence
may be any amino acid

<400> 4

```

Met Thr Ala Xaa Glu Gln Cys Arg Arg Ile Phe Gly Ala Gly Ala Asn
  1              5              10              15

```

```

Thr Ala Ser Glu Thr Cys Tyr Lys Gln Leu Asn Thr Leu Gly Asp Arg
      20              25              30

```

```

Val Gly His Cys Gly Ile Lys Asn
      35              40

```

<210> 5

<211> 125

<400> 5

Glu Asp Trp Val Tyr Tyr Arg Ile Ser His Glu Glu Lys Asp Leu Phe
 1 5 10 15

Phe Asn Leu Thr Val Asn Gln Gly Phe Leu Ser Asn Ser Tyr Ile Met
 20 25 30

Glu Lys Arg Tyr Gly Asn Leu Ser His Val Lys Met Met Ala Ser Ser
 35 40 45

Ala Pro Leu Cys His Leu Ser Gly Thr Val Leu Gln Gln Gly Thr Arg
 50 55 60

Val Gly Thr Ala Ala Leu Ser Ala Cys His Gly Leu Thr Gly Phe Phe
 65 70 75 80

Gln Leu Pro His Gly Asp Phe Phe Ile Glu Pro Val Lys Lys His Pro
 85 90 95

Leu Val Glu Gly Gly Tyr His Pro His Ile Val Tyr Arg Arg Gln Lys
 100 105 110

Val Pro Glu Thr Lys Glu Pro Thr Cys Gly Leu
 115 120

<210> 6

<211> 499

<212> PRT

<213> Homo sapiens

<400> 6

His Glu Asp Leu Tyr Leu Gln Arg Lys Tyr Asn Asp Ala Leu Ala Trp
 1 5 10 15

Ser Phe Gly Lys Val Cys Ser Leu Glu Tyr Ala Gly Ser Val Ser Thr
 20 25 30

Leu Leu Asp Thr Asn Ile Leu Ala Pro Ala Thr Trp Ser Ala His Glu
 35 40 45

Leu Gly His Ala Val Gly Met Ser His Asp Glu Gln Tyr Cys Gln Cys
 50 55 60

Arg Gly Arg Pro Asn Cys Ile Met Gly Ser Gly Arg Thr Gly Phe Ser
 65 70 75 80

Asn Cys Ser Tyr Ile Ser Phe Phe Lys His Ile Ser Ser Gly Ala Thr
 85 90 95

Cys Leu Asn Asn Ile Pro Gly Leu Gly Tyr Val Leu Lys Arg Cys Gly
 100 105 110

Gly Ala Asn Cys Ser Ile Gly Leu Cys Cys His Asp Cys Arg Phe Arg
 145 150 155 160
 Pro Ser Gly Tyr Val Cys Arg Gln Glu Gly Asn Glu Cys Asp Leu Ala
 165 170 175
 Glu Tyr Cys Asp Gly Asn Ser Ser Ser Cys Pro Asn Asp Val Tyr Lys
 180 185 190
 Gln Asp Gly Thr Pro Cys Lys Tyr Glu Gly Arg Cys Phe Arg Lys Gly
 195 200 205
 Cys Arg Ser Arg Tyr Met Gln Cys Gln Ser Ile Phe Gly Pro Asp Ala
 210 215 220
 Met Glu Ala Pro Ser Glu Cys Tyr Asp Ala Val Asn Leu Ile Gly Asp
 225 230 235 240
 Gln Phe Gly Asn Cys Glu Ile Thr Gly Ile Arg Asn Phe Lys Lys Cys
 245 250 255
 Glu Ser Ala Asn Ser Ile Cys Gly Arg Leu Gln Cys Ile Asn Val Glu
 260 265 270
 Thr Ile Pro Asp Leu Pro Glu His Thr Thr Ile Ile Ser Thr His Leu
 275 280 285
 Gln Ala Glu Asn Leu Met Cys Trp Gly Thr Gly Tyr His Leu Ser Met
 290 295 300
 Lys Pro Met Gly Ile Pro Asp Leu Gly Met Ile Asn Asp Gly Thr Ser
 305 310 315 320
 Cys Gly Glu Gly Arg Val Cys Phe Lys Lys Asn Cys Val Asn Ser Ser
 325 330 335
 Val Leu Gln Phe Asp Cys Leu Pro Glu Lys Cys Asn Thr Arg Gly Val
 340 345 350
 Cys Asn Asn Arg Lys Asn Cys His Cys Met Tyr Gly Trp Ala Pro Pro
 355 360 365
 Phe Cys Glu Glu Val Gly Tyr Gly Gly Ser Ile Asp Ser Gly Pro Pro
 370 375 380
 Gly Leu Leu Arg Gly Ala Ile Pro Leu Ser Ile Trp Val Val Ser Ile
 385 390 395 400
 Ile Met Phe Arg Leu Ile Leu Leu Ile Leu Ser Val Val Phe Val Phe
 405 410 415
 Phe Arg Gln Val Ile Gly Asn His Leu Lys Pro Lys Gln Glu Lys Met

Val Gln Glu Glu Ser Lys Thr Lys Thr Gly Gln Glu Glu Ser Glu Ala
450 455 460

Lys Thr Gly Gln Glu Glu Ser Lys Ala Lys Thr Gly Gln Glu Glu Ser
465 470 475 480

Lys Ala Asn Ile Glu Ser Lys Arg Pro Lys Ala Lys Ser Val Lys Lys
485 490 495

Gln Lys Lys

<210> 7

<211> 2301

<212> DNA

<213> Homo sapiens

<400> 7

```

atgaagatgt tactectget gcattgcett ggggtgttgc tgteectgttc tggacacate 60
caggatgagc acccccaata lcacagccci ccyyaiglyy tgailectgi gaggataact 120
ggcaccacca gaggcattgac acctccagge tggtctctct atatectgce ctttggaggg 180
cagaaacaca ttatccacat aaaggtcaag aagcttttgt ttccaaaaca cctccctgtg 240
ttcacctaca cagaccaggg tgctatcett gaggaccage catttgteca gaataactgc 300
tactatcatg gttatgtgga aggggaccca gaateccctgg ttccctcag tactgtttt 360
gggggttttc aaggaatatt acagataaat gactttgctt atgaaatcaa gccctagca 420
ttttctacca cgtttgaaca tctggtatac aagatggaca gtgaggagaa acaattttca 480
accatgagat ccgattttat gcaaaatgaa ataacatgcc gaatggaatt tgaagaaatt 540
gataattcca ctccagaagca aagttcttat gtgggctggt ggatccattt taggattgtt 600
gaaattgtag tcgtcattga taattatctg tacattcgtt atgaaaggaa cgactcaaag 660
ttgctggagg atctatatgt tattgttaat atagtggatt ccattttgga tgcattgggt 720
gttaagggtgt tattattttgg tttggagatc tggaccaata aaaacctcat tgtagtagat 780
gatgtaagga aatctgtgca cctgtattgc aagtgggaagt cggagaacat tacgccccgg 840
atgcaacatg acacctcaca tcttttcaca actctaggat taagaggggt aagtggcata 900
ggagctttta gaggaatgtg tacaccacac cgtagtgtgt caattgttac ttcatgaac 960
aaaacttttg gcacttttcc aattgcagtg gctcatcacc taggtcataa tttgggcatg 1020
aaccatgatg aggatacatg tcgttggtca caacctagat gcataatgca tgaaggcaac 1080
ccaccaataa cttaaatttag caattgtagt tatggtgatt ttgggaata tactgtagag 1140
aggacaaaag gtttgcttga aacagtacac acaaaggaca tctttaatgt gaagcgtgt 1200
gggaatggtg ttggtgaaga aggagaagag tgtgactgtg gacctttaa gcatgtgca 1260
aaagatccct gctgtctgtc aaattgcact ctgactgatg gttctacttg tcttttggg 1320
ctttgttgca aagactgcaa gttectacca tcagggaag tgtgtagaaa ggaggtcaat 1380
gaatgtgatc ttccagagtg gtgcaatggt acttcccata agtgcccaga tgacttttat 1440
gtggaagatg gaattccctg taaggagagg ggctactgct atgaaaagag ctgtcatgac 1500
cccaatgaac agtqtaggag gaatttttgt gcaggcgcaa atactgcaa tgaacttgc 1560
tacaaaqaat tgaacacctt aggtgacctt gtlggtcact gtggtatcaa aaatgetaca 1620
tatataaagt qtaatatetc agatgtccag tgtggaagaa ttccagtgtg qaatgtgaca 1680
qaaattccca atatgagtga tcatactact gtgcattggg ctccgttcaa tgacataatg 1740
tgctggagta ctgattacca tttggggatg aagggacctg atattggtga agtgaaagat 1800
ggaacagagt gtgggtaga tcatatatgc atccacagge actgtgtcca tataaccatc 1860
ttgaatagta attgctcacc tgcattttgt aacaagaggt gcatctgcaa caataaacat 1920
cactgcattt qcaattatct gtaggaacct ccaactgce tgaataaaag ctatgpppt 1980
agtgttgaqa gtgggcaacc cctaaatga aagaadama aatgttctgt ttatctgtgt 2040

```

<210> 8
 <211> 2364
 <212> DNA
 <213> Homo sapiens

<400> 8
 atcaagatgt taactcctget qeatttgcctt ggggtgttfe tgtcctgttc tgaaacatc 60
 caggatgagc aaccccaata tcaacagccct caggatgttg tgatcctgtt gaggataaact 120
 ggcaccacca gaggcattgac acctccagge ttgctctcct atatcctgcc ctttggaggc 180
 cagaaacaca ttatccacat aaagggtcaag aagcttttct ttccaaaaca cctccctgtg 240
 ttcacctaca cagaccaggg tgcatacctt gaggaccagc catttgtcca gaataactgc 300
 taactatcatg gttatgtgga aggggaccca gaatccctgg ttccctcag tacctgtttt 360
 ggggggtttc aaggaatatt acagataaat gactttgctt atgaaatcaa gcccttagca 420
 tttctacca cgtttgaaca tctgggtatac aagatggaca gtgaggagaa acaattttca 480
 accatgagat ccggatttat gcaaaatgaa ataacatgcc gaatggaatt tgaagaaatt 540
 gataattcca ctcagaagca aagttcttat gtgggctggg ggatccattt taggattgtt 600
 gaaattgtag tcgtcattga taattatctg tacattcgtt atgaaaggaa cgaactcaag 660
 ttgctggagg atctatatgt tattgttaat atagtggatt ccattttgga tgcattgggt 720
 gttaagggtgt tattatttgg ttggagatc tggaccaata aaaacctcat tctagtatag 780
 gatgtaagga aatctgtgca cctgtattgc aagtggaggt cggagaacat tacgccccgg 840
 atgcaacatg acacctcaca tcttttcaca actctaggat taagagggtt aagtggcata 900
 ggagctttta gaggaatgtg tacaccacac cgtagtgtg caattgttac ttcatgaac 960
 aaaacttttg gcactttttc aattgcagtg gctcatcctc taggtcataa ttggggcatg 1020
 aaccatgatg aggatacatg tcgttggtca caacctagat gcataatgca tgaaggcaac 1080
 ccaccaataa ctaaatttag caattgtagt tatggtgatt ttgggaata tactgtagag 1140
 aggacaaagt gtttgcttga aacagtacac acaaaggaca tctttaatgt gaagecctgt 1200
 gggaatgggt ttgttgaaga aggagaagag tgtgactgtg gacctttaa gcattgtgca 1260
 aaagatccct gctgtctgtc aaattgcaet actctagat gttctacttg tcttttggg 1320
 ctttgtttga aagactgcaa gttcctacca tcagggaag tgtgtagaaa ggaggccaat 1380
 gaatgtgac ttccagagtg gtgcaatggt acttcccata agtgcaccaga tgacttttat 1440
 gtggaagatg gaattccctg taaggagagg ggtactgtct atgaaaagag ctgtcatgac 1500
 cgcaatgaac agtgtaggag gatttttggg gcaggcgcaa atactgcaag tgagacttgc 1560
 tacaaagaat tgaacacctt aggtgaccgt gttggtcaet gtggtatcaa aaatgctaca 1620
 tatataaagt gtaatatctc agatgtccag tgtggaagaa ttcagtgtga gaatgtgaca 1680
 gaaattccca atatgagtga tcatactact gtgcattggg ctgcttcaa tgacataatg 1740
 tgctggagta ctgattacca ttgggggatg aagggacctg atattggtga agtgaaagat 1800
 ggaacagagt gtgggataga tcatatatgc atccacaggc actgtgtcca tataaccatc 1860
 ttgaatagta attgtcacc tgcattttgt aacaagaggg gcacttgcaa caataaacat 1920
 cactgccatt gcaattatct gtgggacctt cccaactgcc tgataaaaagg ctatggagggt 1980
 agtgttgaca gtggteccac ccttaagaga aagaagaaaa agaagttctg ttatctgtgt 2040
 atattgttgc ttattgtttt gtttatttta ttatgtgttc ttatcgact ttgtaaaaaa 2100
 agtaaaccaa taaaaaagca gcaagatgtt caaactccat ctgcaaaaga agaggaaaaa 2160
 attcagctc gaectcatga gttacctccc cagagtcac ctgggtgat gcttcccag 2220
 agtcaacctc ctgtgacqcc ttcccagagt cactctcagg tgatgccttc ccagagtcac 2280
 cctcctcaaa atttatctct gttcagcttc tcaatcaatg actgtgtgtt aaatttttagt 2340
 ctactgtate ttcaqccac ctga 2364

<210> 9
 <211> 2463
 <212> DNA
 <213> Homo sapiens

```

ttcaactaca cagaccaggg tctatacctt gaggaccagg cattttgtca qaataactgc 360
taetateatg gttatgtgga agggaaecca qaateectgg ttteectcag taccetgttt 360
gggggttttc aagggaatatt acagataaat qactttgctt atqaatcaa qeectatgca 420
ttttetacca cgtttgaaca tetggtatag aagatggaca gtgaggaama acanttttca 420
aecatdaagat cccpatttat qaaaatqaa ataacatccc quatqaatt taaaatatt 540
qataatttca etcaqaacaa aagttcttat gtgagctggt agtccatttt tagaatatt 600
qaaattgtag tegtcatlga taattatctg tacattcggt atgaasgaa cpaectcaaa 600
ttgctggagg atctatatgt tattgttaat atagtggatt ccatttttga tqtcatrggg 720
gttaagggtgt tattatttgg ttggagatc tggaccaata aaaacctcat tgtagttag 780
gatgtaagga aatctgtgca cctgtattgc aagtggaggt cggagaacat tacgcccagg 840
atgcaacatg acacctcaca tcttttcaca actctaggat taagaggggt aagtggcata 900
ggagctttta gaggaatgtg tacaccacac cgtagttgtg caattgttac ttccatgaac 960
aaaacttttg gcacttttgc aattgcagt gctcatcgc taggtcataa ttggggcatg 1020
aaccatgatg aggatacatg tegtgttca caacctagat gcataatgca tgaaggcaac 1080
ccaccaataa ctaaaatttag caattgtagt tatgggtgatt ttgggaata tactgtagag 1140
aggacaaagt gtttgcctga aacagtacac acaaaggaca tctttaatgt gaagcctgt 1200
gggaatgggtg ttgttgaaga aggagaagag tgtgactgtg gacctttaaa gcattgtgca 1260
aaagatccct gctgtctgtc aaattgcact ctgactgatg gttctacttg tcttttggg 1320
ctttgttga aagactgcaa gtteclacca tcagggaag tgtgtagaaa ggaggtcaat 1380
gaatgtgatc ttccagagt gtgcaatggt actteccata agtgcacaga gaacttttat 1440
gtggaagatg gaattccctg taaggagagg ggetactgt atgaaaagag ctgtcatgac 1500
cgcaatgaac agtgtaggag gatlttttgg gtgagcgcaa atactgcaag tgagacttgc 1560
tacaagaat tgaacacctt aggtgacctt gttggctact gtggtatcaa aaatgctaca 1620
tatataaagt gtaatatctc agatgtccag tgtggaagaa ttcagtgtga gaatgtgaca 1680
gaaattccca atatgagtga tcatactact gtgcattggg ctgccttcaa tgacataatg 1740
tgctggagta ctgattacca ttgggggatg aagggaacct atattggtga agtgaaagat 1800
ggaacagagt gtgggataga tcatatatgc atccacagge actgtgtcca tataaccatc 1860
ttgaatgta atgtctacc tgcattttgt aacaagagg gcactctgcaa caataaacat 1920
cactgccatt gcaattatct gtgggacct cccaactgce tgataaaagg ctatggagggt 1980
agtgttgaca gtggcccacc cctaagaga aagaagaaaa agaagttctg ttatctgtgt 2040
atattgttgc ttattgtttt gtttatttta ttatgttgtt ttatctgact ttgtaaaaaa 2100
agtaaaccaa taaaaaagca gcaagatgtt caaactccat ctgcaaaaga agaggaaaaa 2160
attcagcgtc gacctcatga gttacctccc cagagtcaac ctggggtgat gccttcccag 2220
agteaacctc ctgtgaagcc ttcccagagt catctctggg tgatgccttc tcagagtcac 2280
cctcctgtga tgccttccca gagtcatcct cagtgtgacg ctteccagag tcaacctcct 2340
gtgatgcctt cccagagtea tectcagttg acgccttccc agagtcaacc tectgtgaca 2400
cctcccaga ggcaacctca gttgatgcct tcccagagtc aacctcctgt gacgcctccc 2460
tag 2463

```

<210> 10

<211> 2373

<212> DNA

<213> Homo sapiens

<400> 10

```

atgaggtcag tgcagatcct cctctcccaa tgcctgtttr tctttctact agttcagca 60
atgtccttta agtctcttgg cgaagatgta atttttcacc ctgaagggga gtttgctcag 120
tatgaagtca ccattcctga gaagctgagc ttccggggag aggtgcaggg tgtggtcagt 180
cccggtgtct acctactgca gttaaaaggg aaagaagcag tectccattt gtggcccaag 240
aacttctgt tgcctcagaa tctgcgctt ttctccttca cagaacatga ggaactgctg 300
gaggtatcct cttacatacc aaactactat aactacatct cctcctgaa aaggtctctg 360
cactctaaat ctactataat caatgcatg ggggtctcc qactgtatt taacattgat 420

```

```

tttcaagatg ttccgatgag qatacaactta aaggetcttg aagtatggac agattttaac 780
aaaatacgcg ttggatatec agagtttagc gaagtttttag gcagatttgc aatatataaa 840
aaaagtgtat taaatgctcc cctgtcacc ctttgggac atttatatct tcaaaagaaa 900
tataatgatg cttcttaccg ctccgttggc aaagtgtgtt ctttagaata tctggtatca 960
atgaatactt tactatatac aaatatcctt cccctgcta cctggtctgc tcatgaactg 1020
ttcatgctg taggaatgta atgatgaa caatactgcc aatgtagaa taggctaat 1080
tgcataatgg gctcaggagc cctgggtttt acaatttgc gttatatctc tttttttaa 1140
catatctctt cgggagcaac atgtctaaat aatatcccag gaetagggtt tgtgtttaa 1200
agatgtggaa acaaaattgt ggaggacaat gaggaatgtg attgtggttc cacagaggag 1260
tgtcagaaag atcgggtgtt ccaatcaaat tgttaagttg aaccagggtg caactgtagc 1320
attggacttt gctgtcatga ttgtcgggtt cgtccatctg gatacgtgtg taggcaggaa 1380
ggaaatgaat gtgaccttgc agagtactgc gacgggaatt caagtctctg cccaaatgac 1440
gtttataagc aggatggaac ccttgcaag tatgaaggcc gttgtttcag gaaggggtgc 1500
agatccagat atatgcagtg ccaaagcatt ttggacctg atgccatgga ggctcctagt 1560
gagtgtctat atgcagttaa cttaataggt gatcaatttg gtaactgtga gattacagga 1620
attcgaaatt ttaaaaagtg tgaaagtgc aattcaatat gtggcaggct acagtgtata 1680
aatgttgaaa ccacctctga ttgcccagag catacgacta taatttctac tcatttacag 1740
gcagaaaatc tcatgtgctg gggcacagge tatcatctat ccatgaaacc catgggaata 1800
cctgacctag gtatgataaa tgatggcacc tctgtgtggg aaggccgggt atgtttttaa 1860
aaaaattgct tcaatagctc agtctgcag ttgactgtt tgcctgagaa atgcaatacc 1920
cggggtgttt gcaacaacag aaaaaactgc cactgcatgt atgggtgggc acctccatc 1980
tgtgaggaag tggggtatgg aggaagcatt gcagtggggc ctccaggact gctcagaggg 2040
gcgattccct cgtcaatttg ggtgtgtctc atcataatgt ttgccttat tttattaatc 2100
ctttcagtggt tttttgtgtt ttccggcaca gtgataggaa accacttaaa acccaaacag 2160
gaaaaaatgc cactatccaa agcaaaaact gaacaggaag aatctaaaac aaaaactgta 2220
caggaagaat ctaaaacaaa aactggacag gaagaatctg aagcaaaaac tggacaggaa 2280
gaatctaaag caaaaactgg acaggaagaa tctaaagcaa acattgaaag taaacgaccc 2340
aaagcaaaaga gtgtcaagaa acaaaaaaag taa 2373

```

<210> 11

<211> 2346

<212> DNA

<213> Homo sapiens

<400> 11

```

atgagggtcag tgcagatctt cctctcccaa tgcggtttgc tcttctact agttccgaca 60
atgtctctta agtctcttgg cgaagatgta attttccac ctgaagggga gtttgactcg 120
tatgaagtca ccattcctga gaagctgagc ttccggggag aggtgcaggg tgtggtcagt 180
cccggtgctc acctactgca gttaaaagge aagaagcacg tctctcattt gtggcccaag 240
agacttctgt tgccccgaca tctgcgcgtt ttctccttca cagaacatgg ggaactgctg 300
gaggatcacc cttacatacc aaaggactgc aactacatgg gctccgtgaa agagtctctg 360
gactctaaaq ctactataag cacatgcatt ggggggtctc gaggtgtatt taacattgat 420
gccaaacatt accaaattga gcccctcaag cctctcccaa gttttgaaca tgcctctat 480
ctcctgaaga aagagcagtt tgggaatcag gtttgtgggt taagtgtatg tgaatagaa 540
tggcagatgg ccccttatga gaataagggc aggtcaaggg accttccctg atccatataa 600
cagccaaaagt acttggaaft gactctactc ttgtatcaaa gtaggatatg gtttgtgaac 660
aacaatcttt ctcaagtcatt acatgatgcc attcttttga ctgggattat ggacacctac 720
tttcaagatg ttccgatgag gatacaacta aaggetcttg aagtatggac agattttaac 780
aaaatacgcg ttggatatec agagtttagc gaagtttttag gcagatttgc aatatataaa 840
aaaagtgtat taaatgctcc cctgtcacc ctttgggac atttatatct tcaaaagaaa 900
tataatgatg cttcttaccg ctccgttggc aaagtgtgtt ctttagaata tctggtatca 960
atgaatactt tactatatac aaatatcctt cccctgcta cctggtctgc tcatgaactg 1020

```



```

attggaacttt  getgtcatga  ttgtcggttt  catccatctg  gatacgtgtg  taggcaggaa  1380
aaaaatgaat  qtgaccttgc  aaagtactgc  qacgggaatt  caagttcctg  cccaaatgac  1440
atttataagg  aggatggaa  ccccttcaaa  tatgaaggcc  gtgtgtttcag  gaagggggtg  1500
agatccagat  atatgcagt  ccaaaacatt  ttggacctg  atgccatgga  gactcctagt  1560
aagtgetatg  atgcagttaa  cttaataagt  gatcaatttg  gtaactgtga  gattacagga  1620
attcgaaatt  ttaaaagtg  taaaagtga  aattcaatat  gtgcacgppc  acaagtata  1680
aattgttga  ccatcctga  ttgcacaga  catacgaata  taatttctac  tcaatttaga  1740
gcagaaaate  tcatgtgtg  gggcacagge  tateatctat  ccatgaaace  catgggaata  1800
cctgacctag  gtatgataaa  tgatggcace  tectgtggag  aaggccgggt  atgtttttaa  1860
aaaaattgeg  tcaatagct  agtccgtcag  tttgactgtt  tgcctgagaa  atgcaatacc  1920
cggggtgttt  gcaacaacag  aaaaaactgc  cactgcatgt  atgggtgggc  acctccatc  1980
tgtgaggaag  tggggtatgg  aggaagcatt  gacagtgggc  ctccaggact  gctcagaggg  2040
gegattccct  cgtcaatttg  ggttgtgtcc  atcataatgt  ttegccttat  tttattaate  2100
ctttcagtgg  tttttgttt  ttccggcaa  gtgataggaa  accacttaaa  acccaaacag  2160
gaaaaaatgc  cactatccaa  agcaaaaact  gaacaggaag  aatctaaaac  aaaaactgta  2220
caggaagaat  ctaaaacaaa  aactggacag  gaagaatctg  aagcaaaaac  tggacaggaa  2280
gaatctaaag  caaacattga  aagtaaacga  cccaaagcaa  agagtgtcaa  gaaacaaaaa  2340
aagtaa  2346

```

<210> 12

<211> 766

<212> PRT

<213> Homo sapiens

<400> 12

```

Met Lys Met Leu Leu Leu Leu His Cys Leu Gly Val Phe Leu Ser Cys
  1                      5                      10                      15

```

```

Ser Gly His Ile Gln Asp Glu His Pro Gln Tyr His Ser Pro Pro Asp
      20                      25                      30

```

```

Val Val Ile Pro Val Arg Ile Thr Gly Thr Thr Arg Gly Met Thr Pro
      35                      40                      45

```

```

Pro Gly Trp Leu Ser Tyr Ile Leu Pro Phe Gly Gly Gln Lys His Ile
      50                      55                      60

```

```

Ile His Ile Lys Val Lys Lys Leu Leu Phe Ser Lys His Leu Pro Val
      65                      70                      75                      80

```

```

Phe Thr Tyr Thr Asp Gln Gly Ala Ile Leu Glu Asp Gln Pro Phe Val
      85                      90                      95

```

```

Gln Asn Asn Cys Tyr Tyr His Gly Tyr Val Glu Gly Asp Pro Glu Ser
      100                      105                      110

```

```

Leu Val Ser Leu Ser Thr Cys Phe Gly Gly Phe Gln Gly Ile Leu Gln
      115                      120                      125

```

```

Ile Asn Asp Phe Ala Tyr Glu Ile Lys Pro Leu Ala Phe Ser Thr Thr
      130                      135                      140

```

Phe Glu Glu Ile Asp Asn Ser Thr Gln Lys Gln Ser Ser Tyr Val Gly
 180 185 190
 Trp Trp Ile His Phe Arg Ile Val Glu Ile Val Val Val Ile Asp Asn
 195 200 205
 Tyr Leu Tyr Ile Arg Tyr Glu Arg Asn Asp Ser Lys Leu Leu Glu Asp
 210 215 220
 Leu Tyr Val Ile Val Asn Ile Val Asp Ser Ile Leu Asp Val Ile Gly
 225 230 235 240
 Val Lys Val Leu Leu Phe Gly Leu Glu Ile Trp Thr Asn Lys Asn Leu
 245 250 255
 Ile Val Val Asp Asp Val Arg Lys Ser Val His Leu Tyr Cys Lys Trp
 260 265 270
 Lys Ser Glu Asn Ile Thr Pro Arg Met Gln His Asp Thr Ser His Leu
 275 280 285
 Phe Thr Thr Leu Gly Leu Arg Gly Leu Ser Gly Ile Gly Ala Phe Arg
 290 295 300
 Gly Met Cys Thr Pro His Arg Ser Cys Ala Ile Val Thr Phe Met Asn
 305 310 315 320
 Lys Thr Leu Gly Thr Phe Ser Ile Ala Val Ala His His Leu Gly His
 325 330 335
 Asn Leu Gly Met Asn His Asp Glu Asp Thr Cys Arg Cys Ser Gln Pro
 340 345 350
 Arg Cys Ile Met His Glu Gly Asn Pro Pro Ile Thr Lys Phe Ser Asn
 355 360 365
 Cys Ser Tyr Gly Asp Phe Trp Glu Tyr Thr Val Glu Arg Thr Lys Cys
 370 375 380
 Leu Leu Glu Thr Val His Thr Lys Asp Ile Phe Asn Val Lys Arg Cys
 385 390 395 400
 Gly Asn Gly Val Val Glu Glu Gly Glu Glu Cys Asp Cys Gly Pro Leu
 405 410 415
 Lys His Cys Ala Lys Asp Pro Cys Cys Leu Ser Asn Cys Thr Leu Thr
 420 425 430
 Asp Gly Ser Thr Cys Ala Phe Gly Leu Cys Cys Lys Asp Cys Lys Phe
 435 440 445
 Leu Pro Ser Gly Leu Val Cys Arg Lys Glu Val Asn Glu Cys Asp Leu

Val Glu Asp Gly Ile Pro Cys Lys Glu Arg Gly Tyr Cys Tyr Glu Lys
 485 490 495
 Ser Cys His Asp Arg Asn Glu Gln Cys Arg Arg Ile Phe Gly Ala Gly
 500 505 510
 Ala Asn Thr Ala Ser Glu Thr Cys Tyr Lys Glu Leu Asn Thr Leu Gly
 515 520 525
 Asp Arg Val Gly His Cys Gly Ile Lys Asn Ala Thr Tyr Ile Lys Cys
 530 535 540
 Asn Ile Ser Asp Val Gln Cys Gly Arg Ile Gln Cys Glu Asn Val Thr
 545 550 555 560
 Glu Ile Pro Asn Met Ser Asp His Thr Thr Val His Trp Ala Arg Phe
 565 570 575
 Asn Asp Ile Met Cys Trp Ser Thr Asp Tyr His Leu Gly Met Lys Gly
 580 585 590
 Pro Asp Ile Gly Glu Val Lys Asp Gly Thr Glu Cys Gly Ile Asp His
 595 600 605
 Ile Cys Ile His Arg His Cys Val His Ile Thr Ile Leu Asn Ser Asn
 610 615 620
 Cys Ser Pro Ala Phe Cys Asn Lys Arg Gly Ile Cys Asn Asn Lys His
 625 630 635 640
 His Cys His Cys Asn Tyr Leu Trp Asp Pro Pro Asn Cys Leu Ile Lys
 645 650 655
 Gly Tyr Gly Gly Ser Val Asp Ser Gly Pro Pro Pro Lys Arg Lys Lys
 660 665 670
 Lys Lys Lys Phe Cys Tyr Leu Cys Ile Leu Leu Leu Ile Val Leu Phe
 675 680 685
 Ile Leu Leu Cys Cys Leu Tyr Arg Leu Cys Lys Lys Ser Lys Pro Ile
 690 695 700
 Lys Lys Gln Gln Asp Val Gln Thr Pro Ser Ala Lys Glu Glu Glu Lys
 705 710 715 720
 Ile Gln Arg Arg Pro His Glu Leu Pro Pro Gln Ser Gln Pro Trp Val
 725 730 735
 Met Pro Ser Gln Ser Gln Pro Pro Val Thr Pro Ser Gln Arg Gln Pro
 740 745 750
 Glu Leu Met Thr Ser Gln Ser Gln Pro Pro Val Thr Pro Ser
 755 760 765

213 - Homo sapiens

400 - 13

Met Lys Met Leu Leu Leu Leu His Cys Leu Gly Val Phe Leu Ser Cys
1 5 10 15

Ser Gly His Ile Gln Asp Glu His Pro Gln Tyr His Ser Pro Pro Asp
20 25 30

Val Val Ile Pro Val Arg Ile Thr Gly Thr Thr Arg Gly Met Thr Pro
35 40 45

Pro Gly Trp Leu Ser Tyr Ile Leu Pro Phe Gly Gly Gln Lys His Ile
50 55 60

Ile His Ile Lys Val Lys Lys Leu Leu Phe Ser Lys His Leu Pro Val
65 70 75 80

Phe Thr Tyr Thr Asp Gln Gly Ala Ile Leu Glu Asp Gln Pro Phe Val
85 90 95

Gln Asn Asn Cys Tyr Tyr His Gly Tyr Val Glu Gly Asp Pro Glu Ser
100 105 110

Leu Val Ser Leu Ser Thr Cys Phe Gly Gly Phe Gln Gly Ile Leu Gln
115 120 125

Ile Asn Asp Phe Ala Tyr Glu Ile Lys Pro Leu Ala Phe Ser Thr Thr
130 135 140

Phe Glu His Leu Val Tyr Lys Met Asp Ser Glu Glu Lys Gln Phe Ser
145 150 155 160

Thr Met Arg Ser Gly Phe Met Gln Asn Glu Ile Thr Cys Arg Met Glu
165 170 175

Phe Glu Glu Ile Asp Asn Ser Thr Gln Lys Gln Ser Ser Tyr Val Gly
180 185 190

Trp Trp Ile His Phe Arg Ile Val Glu Ile Val Val Val Ile Asp Asn
195 200 205

Tyr Leu Tyr Ile Arg Tyr Glu Arg Asn Asp Ser Lys Leu Leu Glu Asp
210 215 220

Leu Tyr Val Ile Val Asn Ile Val Asp Ser Ile Leu Asp Val Ile Gly
225 230 235 240

Val Lys Val Leu Leu Phe Gly Leu Glu Ile Trp Thr Asn Lys Asn Leu
245 250 255

Ile Val Val Asp Asp Val Arg Lys Ser Val His Leu Tyr Cys Lys Trp
260 265 270

Phe Thr Thr Leu Gly Leu Arg Gly Leu Ser Gly Ile Gly Ala Phe Arg
 290 295 300
 Gly Met Cys Thr Pro His Arg Ser Cys Ala Ile Val Thr Phe Met Asn
 305 310 315 320
 Lys Thr Leu Gly Thr Phe Ser Ile Ala Val Ala His His Leu Gly His
 325 330 335 340
 Asn Leu Gly Met Asn His Asp Glu Asp Thr Cys Arg Cys Ser Gln Pro
 340 345 350
 Arg Cys Ile Met His Glu Gly Asn Pro Pro Ile Thr Lys Phe Ser Asn
 355 360 365
 Cys Ser Tyr Gly Asp Phe Trp Glu Tyr Thr Val Glu Arg Thr Lys Cys
 370 375 380
 Leu Leu Glu Thr Val His Thr Lys Asp Ile Phe Asn Val Lys Arg Cys
 385 390 395 400
 Gly Asn Gly Val Val Glu Glu Gly Glu Glu Cys Asp Cys Gly Pro Leu
 405 410 415
 Lys His Cys Ala Lys Asp Pro Cys Cys Leu Ser Asn Cys Thr Leu Thr
 420 425 430
 Asp Gly Ser Thr Cys Ala Phe Gly Leu Cys Cys Lys Asp Cys Lys Phe
 435 440 445
 Leu Pro Ser Gly Lys Val Cys Arg Lys Glu Val Asn Glu Cys Asp Leu
 450 455 460
 Pro Glu Trp Cys Asn Gly Thr Ser His Lys Cys Pro Asp Asp Phe Tyr
 465 470 475 480
 Val Glu Asp Gly Ile Pro Cys Lys Glu Arg Gly Tyr Cys Tyr Glu Lys
 485 490 495
 Ser Cys His Asp Arg Asn Glu Gln Cys Arg Arg Ile Phe Gly Ala Gly
 500 505 510
 Ala Asn Thr Ala Ser Glu Thr Cys Tyr Lys Glu Leu Asn Thr Leu Gly
 515 520 525
 Asp Arg Val Gly His Cys Gly Ile Lys Asn Ala Thr Tyr Ile Lys Cys
 530 535 540
 Asn Ile Ser Asp Val Gln Cys Gly Arg Ile Gln Cys Glu Asn Val Thr
 545 550 555 560
 Glu Ile Pro Asn Met Ser Asp His Thr Thr Val His Trp Ala Arg Phe
 565 570 575

Pro Asp Ile Gly Glu Val Lys Asp Gly Thr Glu Cys Gly Ile Asp His
 634 639 644
 Ile Cys Ile His Arg His Cys Val His Ile Thr Ile Leu Asn Ser Asn
 649 654 659
 Cys Ser Pro Ala Phe Cys Asn Lys Arg Gly Ile Cys Asn Asn Lys His
 625 630 635 640
 His Cys His Cys Asn Tyr Leu Trp Asp Pro Pro Asn Cys Leu Ile Lys
 645 650 655
 Gly Tyr Gly Gly Ser Val Asp Ser Gly Pro Pro Pro Lys Arg Lys Lys
 660 665 670
 Lys Lys Lys Phe Cys Tyr Leu Cys Ile Leu Leu Leu Ile Val Leu Phe
 675 680 685
 Ile Leu Leu Cys Cys Leu Tyr Arg Leu Cys Lys Lys Ser Lys Pro Ile
 690 695 700
 Lys Lys Gln Gln Asp Val Gln Thr Pro Ser Ala Lys Glu Glu Glu Lys
 705 710 715 720
 Ile Gln Arg Arg Pro His Glu Leu Pro Pro Gln Ser Gln Pro Trp Val
 725 730 735
 Met Pro Ser Gln Ser Gln Pro Pro Val Thr Pro Ser Gln Ser His Pro
 740 745 750
 Gln Val Met Pro Ser Gln Ser Gln Pro Pro Gln Asn Leu Phe Leu Phe
 755 760 765
 Ser Phe Ser Ile Ser Asp Cys Val Leu Asn Phe Arg Leu Leu Tyr Leu
 770 775 780
 Gln Ala Thr
 785

<210> 14

<211> 820

<212> PPT

<213> Homo sapiens

<400> 14

Met Lys Met Leu Leu Leu Leu His Cys Leu Gly Val Phe Leu Ser Cys
 1 5 10 15

Ser Gly His Ile Gln Asp Glu His Pro Gln Tyr His Ser Pro Pro Asp
 20 25 30

Val Val Ile Pro Val Arg Ile Thr Gly Thr Thr Arg Gly Met Thr Pro

Ile His Ile Lys Val Lys Lys Leu Leu Phe Ser Lys His Leu Pro Val
 65 70 75 80
 Phe Thr Tyr Thr Asp Gln Gly Ala Ile Leu Glu Asp Gln Pro Phe Val
 85 90 95
 Gln Asn Asn Cys Tyr Tyr His Gly Tyr Val Glu Gly Asp Pro Glu Ser
 100 105 110
 Leu Val Ser Leu Ser Thr Cys Phe Gly Gly Phe Gln Gly Ile Leu Gln
 115 120 125
 Ile Asn Asp Phe Ala Tyr Glu Ile Lys Pro Leu Ala Phe Ser Thr Thr
 130 135 140
 Phe Glu His Leu Val Tyr Lys Met Asp Ser Glu Glu Lys Gln Phe Ser
 145 150 155 160
 Thr Met Arg Ser Gly Phe Met Gln Asn Glu Ile Thr Cys Arg Met Glu
 165 170 175
 Phe Glu Glu Ile Asp Asn Ser Thr Gln Lys Gln Ser Ser Tyr Val Gly
 180 185 190
 Trp Trp Ile His Phe Arg Ile Val Glu Ile Val Val Val Ile Asp Asn
 195 200 205
 Tyr Leu Tyr Ile Arg Tyr Glu Arg Asn Asp Ser Lys Leu Leu Glu Asp
 210 215 220
 Leu Tyr Val Ile Val Asn Ile Val Asp Ser Ile Leu Asp Val Ile Gly
 225 230 235 240
 Val Lys Val Leu Leu Phe Gly Leu Glu Ile Trp Thr Asn Lys Asn Leu
 245 250 255
 Ile Val Val Asp Asp Val Arg Lys Ser Val His Leu Tyr Cys Lys Trp
 260 265 270
 Lys Ser Glu Asn Ile Thr Pro Arg Met Gln His Asp Thr Ser His Leu
 275 280 285
 Phe Thr Thr Leu Gly Leu Arg Gly Leu Ser Gly Ile Gly Ala Phe Arg
 290 295 300
 Gly Met Cys Thr Pro His Arg Ser Cys Ala Ile Val Thr Phe Met Asn
 305 310 315 320
 Lys Thr Leu Gly Thr Phe Ser Ile Ala Val Ala His His Leu Gly His
 325 330 335
 Asn Leu Gly Met Asn His Asp Glu Asp Thr Cys Ala Cys Ser Gln Pro
 340 345 350

Cys Ser Tyr Gly Asp Phe Trp Glu Tyr Thr Val Glu Arg Thr Lys Cys
 370 375 380
 Leu Leu Glu Thr Val His Thr Lys Asp Ile Phe Asn Val Lys Arg Cys
 385 390 395 400
 Gly Asn Gly Val Val Glu Glu Gly Glu Glu Cys Asp Cys Gly Pro Leu
 405 410 415
 Lys His Cys Ala Lys Asp Pro Cys Cys Leu Ser Asn Cys Thr Leu Thr
 420 425 430
 Asp Gly Ser Thr Cys Ala Phe Gly Leu Cys Cys Lys Asp Cys Lys Phe
 435 440 445
 Leu Pro Ser Gly Lys Val Cys Arg Lys Glu Val Asn Glu Cys Asp Leu
 450 455 460
 Pro Glu Trp Cys Asn Gly Thr Ser His Lys Cys Pro Asp Asp Phe Tyr
 465 470 475 480
 Val Glu Asp Gly Ile Pro Cys Lys Glu Arg Gly Tyr Cys Tyr Glu Lys
 485 490 495
 Ser Cys His Asp Arg Asn Glu Gln Cys Arg Arg Ile Phe Gly Ala Gly
 500 505 510
 Ala Asn Thr Ala Ser Glu Thr Cys Tyr Lys Glu Leu Asn Thr Leu Gly
 515 520 525
 Asp Arg Val Gly His Cys Gly Ile Lys Asn Ala Thr Tyr Ile Lys Cys
 530 535 540
 Asn Ile Ser Asp Val Gln Cys Gly Arg Ile Gln Cys Glu Asn Val Thr
 545 550 555 560
 Glu Ile Pro Asn Met Ser Asp His Thr Thr Val His Trp Ala Arg Phe
 565 570 575
 Asn Asp Ile Met Cys Trp Ser Thr Asp Tyr His Leu Gly Met Lys Gly
 580 585 590
 Pro Asp Ile Gly Glu Val Lys Asp Gly Thr Glu Cys Gly Ile Asp His
 595 600 605
 Ile Cys Ile His Arg His Cys Val His Ile Thr Ile Leu Asn Ser Asn
 610 615 620
 Cys Ser Pro Ala Phe Cys Asn Lys Arg Gly Ile Cys Asn Asn Lys His
 625 630 635 640
 His Cys His Cys Asn Tyr Leu Trp Asp Pro Leu Asn Cys Leu Ile Lys
 645 650 655

Lys Lys Lys Phe Cys Tyr Leu Cys Ile Leu Leu Leu Ile Val Leu Phe
675 680 685

Ile Leu Leu Cys Cys Leu Tyr Arg Leu Cys Lys Lys Ser Lys Phe Ile
690 695 700

Lys Lys Gln Gln Asp Val Gln Thr Pro Ser Ala Lys Gln Gln Gln Lys
705 710 715

Ile Gln Arg Arg Pro His Glu Leu Pro Pro Gln Ser Gln Pro Trp Val
725 730 735

Met Pro Ser Gln Ser Gln Pro Pro Val Thr Pro Ser Gln Ser His Pro
740 745 750

Arg Val Met Pro Ser Gln Ser Gln Pro Pro Val Met Pro Ser Gln Ser
755 760 765

His Pro Gln Leu Thr Pro Ser Gln Ser Gln Pro Pro Val Met Pro Ser
770 775 780

Gln Ser His Pro Gln Leu Thr Pro Ser Gln Ser Gln Pro Pro Val Thr
785 790 795 800

Pro Ser Gln Arg Gln Pro Gln Leu Met Pro Ser Gln Ser Gln Pro Pro
805 810 815

Val Thr Pro Ser
820

<210> 15

<211> 790

<212> PRT

<213> Homo sapiens

<400> 15

Met Arg Ser Val Gln Ile Phe Leu Ser Gln Cys Arg Leu Leu Leu Leu
1 5 10 15

Leu Val Pro Thr Met Leu Leu Lys Ser Leu Gly Glu Asp Val Ile Phe
20 25 30

His Pro Glu Gly Glu Phe Asp Ser Tyr Glu Val Thr Ile Pro Glu Lys
35 40 45

Leu Ser Phe Arg Gly Gln Val Gln Gly Val Val Ser Pro Val Ser Tyr
50 55 60

Leu Leu Gln Leu Lys Gly Lys Lys His Val Leu His Leu Trp Pro Lys
65 70 75 80

Arg Leu Leu Leu Pro Arg His Leu Arg Val Phe Ser Phe Thr Gln His

Met Gly Ser Val Lys Glu Ser Leu Asp Ser Lys Ala Thr Ile Ser Thr
115 120 125

Cys Met Gly Gly Leu Arg Gly Val Phe Asn Ile Asp Ala Lys His Tyr
130 135 140

Gln Ile Glu Pro Leu Lys Ala Ser Pro Ser Phe Glu His Val Val Tyr
145 150 155 160

Leu Leu Lys Lys Glu Gln Phe Gly Asn Gln Val Cys Gly Leu Ser Asp
165 170 175

Asp Glu Ile Glu Trp Gln Met Ala Pro Tyr Glu Asn Lys Ala Arg Leu
180 185 190

Arg Asp Phe Pro Gly Ser Tyr Lys His Pro Lys Tyr Leu Glu Leu Ile
195 200 205

Leu Leu Phe Asp Gln Ser Arg Tyr Arg Phe Val Asn Asn Asn Leu Ser
210 215 220

Gln Val Ile His Asp Ala Ile Leu Leu Thr Gly Ile Met Asp Thr Tyr
225 230 235 240

Phe Gln Asp Val Arg Met Arg Ile His Leu Lys Ala Leu Glu Val Trp
245 250 255

Thr Asp Phe Asn Lys Ile Arg Val Gly Tyr Pro Glu Leu Ala Glu Val
260 265 270

Leu Gly Arg Phe Val Ile Tyr Lys Lys Ser Val Leu Asn Ala Arg Leu
275 280 285

Ser Ser Asp Trp Ala His Leu Tyr Leu Gln Arg Lys Tyr Asn Asp Ala
290 295 300

Leu Ala Trp Ser Phe Gly Lys Val Cys Ser Leu Glu Tyr Ala Gly Ser
305 310 315 320

Val Ser Thr Leu Leu Asp Thr Asn Ile Leu Ala Pro Ala Thr Trp Ser
325 330 335

Ala His Glu Leu Gly His Ala Val Gly Met Ser His Asp Glu Gln Tyr
340 345 350

Cys Gln Cys Arg Gly Arg Pro Asn Cys Ile Met Gly Ser Gly Arg Thr
355 360 365

Gly Phe Ser Asn Cys Ser Tyr Ile Ser Phe Phe Lys His Ile Ser Ser
370 375 380

Gly Ala Thr Cys Leu Asn Asn Ile Pro Gly Leu Gly Tyr Val Leu Lys
385 390 395 400

Ser Thr Glu Glu Cys Gln Lys Asp Arg Cys Cys Gln Ser Asn Cys Lys
 410 425 430
 Leu Gln Pro Gly Ala Asn Cys Ser Ile Gly Leu Cys Cys His Asp Cys
 435 440 445
 Arg Phe Arg Pro Ser Gly Tyr Val Cys Arg Gln Glu Gly Asn Gln Cys
 450 455 460
 Asp Leu Ala Glu Tyr Cys Asp Gly Asn Ser Ser Ser Cys Pro Asn Asp
 465 470 475 480
 Val Tyr Lys Gln Asp Gly Thr Pro Cys Lys Tyr Glu Gly Arg Cys Phe
 485 490 495
 Arg Lys Gly Cys Arg Ser Arg Tyr Met Gln Cys Gln Ser Ile Phe Gly
 500 505 510
 Pro Asp Ala Met Glu Ala Pro Ser Glu Cys Tyr Asp Ala Val Asn Leu
 515 520 525
 Ile Gly Asp Gln Phe Gly Asn Cys Glu Ile Thr Gly Ile Arg Asn Phe
 530 535 540
 Lys Lys Cys Glu Ser Ala Asn Ser Ile Cys Gly Arg Leu Gln Cys Ile
 545 550 555 560
 Asn Val Glu Thr Ile Pro Asp Leu Pro Glu His Thr Thr Ile Ile Ser
 565 570 575
 Thr His Leu Gln Ala Glu Asn Leu Met Cys Trp Gly Thr Gly Tyr His
 580 585 590
 Leu Ser Met Lys Pro Met Gly Ile Pro Asp Leu Gly Met Ile Asn Asp
 595 600 605
 Gly Thr Ser Cys Gly Glu Gly Arg Val Cys Phe Lys Lys Asn Cys Val
 610 615 620
 Asn Ser Ser Val Leu Gln Phe Asp Cys Leu Pro Glu Lys Cys Asn Thr
 625 630 635 640
 Arg Gly Val Cys Asn Asn Arg Lys Asn Cys His Cys Met Tyr Gly Trp
 645 650 655
 Ala Pro Pro Phe Cys Glu Glu Val Gly Tyr Gly Gly Ser Ile Asp Ser
 660 665 670
 Gly Pro Pro Gly Leu Leu Arg Gly Ala Ile Pro Ser Ser Ile Trp Val
 675 680 685
 Val Ser Ile Ile Met Phe Arg Leu Ile Leu Leu Ile Leu Ser Val Val
 690 695 700

Glu Lys Met Pro Leu Ser Lys Ala Lys Thr Glu Gln Glu Glu Ser Lys
725 730 735

Thr Lys Thr Val Gln Glu Glu Ser Lys Thr Lys Thr Gly Gln Glu Glu
740 745 750

Ser Glu Ala Lys Thr Gly Gln Glu Gln Ser Lys Ala Lys Thr Gly Gln
755 760 765

Glu Glu Ser Lys Ala Asn Ile Glu Ser Lys Arg Pro Lys Ala Lys Ser
770 775 780

Val Lys Lys Gln Lys Lys
785 790

<210> 16

<211> 781

<212> PRT

<213> Homo sapiens

<400> 16

Met Arg Ser Val Gln Ile Phe Leu Ser Gln Cys Arg Leu Leu Leu Leu
1 5 10 15

Leu Val Pro Thr Met Leu Leu Lys Ser Leu Gly Glu Asp Val Ile Phe
20 25 30

His Pro Glu Gly Glu Phe Asp Ser Tyr Glu Val Thr Ile Pro Glu Lys
35 40 45

Leu Ser Phe Arg Gly Glu Val Gln Gly Val Val Ser Pro Val Ser Tyr
50 55 60

Leu Leu Gln Leu Lys Gly Lys Lys His Val Leu His Leu Trp Pro Lys
65 70 75 80

Arg Leu Leu Leu Pro Arg His Leu Arg Val Phe Ser Phe Thr Glu His
85 90 95

Gly Glu Leu Leu Glu Asp His Pro Tyr Ile Pro Lys Asp Cys Asn Tyr
100 105 110

Met Gly Ser Val Lys Glu Ser Leu Asp Ser Lys Ala Thr Ile Ser Thr
115 120 125

Cys Met Gly Gly Leu Arg Gly Val Phe Asn Ile Asp Ala Lys His Tyr
130 135 140

Gln Ile Glu Pro Leu Lys Ala Ser Pro Ser Phe Glu His Val Val Tyr
145 150 155 160

Leu Leu Lys Leu Glu Gln Phe Gly Asn Gln Val Cys Gly Leu Ser Asp

Arg Asp Phe Pro Gly Ser Tyr Lys His Pro Lys Tyr Leu Glu Leu Ile
 195 200 205
 Leu Leu Phe Asp Gln Ser Arg Tyr Arg Phe Val Asn Asn Asn Leu Ser
 210 215 220
 Gln Val Ile His Asp Ala Ile Leu Leu Thr Gly Ile Met Asp Thr Tyr
 225 230 235 240
 Phe Gln Asp Val Arg Met Arg Ile His Leu Lys Ala Leu Glu Val Trp
 245 250 255
 Thr Asp Phe Asn Lys Ile Arg Val Gly Tyr Pro Glu Leu Ala Glu Val
 260 265 270
 Leu Gly Arg Phe Val Ile Tyr Lys Lys Ser Val Leu Asn Ala Arg Leu
 275 280 285
 Ser Ser Asp Trp Ala His Leu Tyr Leu Gln Arg Lys Tyr Asn Asp Ala
 290 295 300
 Leu Ala Trp Ser Phe Gly Lys Val Cys Ser Leu Glu Tyr Ala Gly Ser
 305 310 315 320
 Val Ser Thr Leu Leu Asp Thr Asn Ile Leu Ala Pro Ala Thr Trp Pro
 325 330 335
 Ala His Glu Leu Gly His Ala Val Gly Met Ser His Asp Glu Gln Tyr
 340 345 350
 Cys Gln Cys Arg Gly Arg Leu Asn Cys Ile Met Gly Ser Gly Arg Thr
 355 360 365
 Gly Phe Ser Asn Cys Ser Tyr Ile Ser Phe Phe Lys His Ile Ser Ser
 370 375 380
 Gly Ala Thr Cys Leu Asn Asn Ile Pro Gly Leu Gly Tyr Val Leu Lys
 385 390 395 400
 Arg Cys Gly Asn Lys Ile Val Glu Asp Asn Glu Glu Cys Asp Cys Gly
 405 410 415
 Ser Thr Glu Glu Cys Gln Lys Asp Arg Cys Cys Gln Ser Asn Cys Lys
 420 425 430
 Leu Gln Pro Gly Ala Asn Cys Ser Ile Gly Leu Cys Tyr His Asp Cys
 435 440 445
 Arg Phe Arg Pro Ser Gly Tyr Val Cys Arg Gln Glu Gly Asn Glu Cys
 450 455 460
 Asp Leu Ala Glu Tyr Cys Asp Gly Asn Ser Leu Leu Cys Pro Asn Asn
 465 470 475 480

Arg Lys Gly Cys Arg Ser Arg Tyr Met Gln Cys Gln Ser Ile Phe Gly
 500 505 510
 Pro Asp Ala Met Glu Ala Pro Ser Gln Cys Tyr Asp Ala Val Asn Leu
 515 520 525
 Ile Gly Asp Gln Phe Gly Asn Cys Glu Ile Thr Gly Ile Arg Asn Phe
 530 535 540
 Lys Lys Cys Glu Ser Ala Asn Ser Ile Cys Gly Arg Leu Gln Cys Ile
 545 550 555 560
 Asn Val Glu Thr Ile Pro Asp Leu Pro Glu His Thr Thr Ile Ile Ser
 565 570 575
 Thr His Leu Gln Ala Glu Asn Leu Met Cys Trp Gly Thr Gly Tyr His
 580 585 590
 Leu Ser Met Lys Pro Met Gly Ile Pro Asp Leu Gly Met Ile Asn Asp
 595 600 605
 Gly Thr Ser Cys Gly Glu Gly Arg Val Cys Phe Lys Lys Asn Cys Val
 610 615 620
 Asn Ser Ser Val Leu Gln Phe Asp Cys Leu Pro Glu Lys Cys Asn Thr
 625 630 635 640
 Arg Gly Val Cys Asn Asn Arg Lys Asn Cys His Cys Met Tyr Gly Trp
 645 650 655
 Ala Pro Pro Phe Cys Glu Glu Val Gly Tyr Gly Gly Ser Ile Asp Ser
 660 665 670
 Gly Pro Pro Gly Leu Leu Arg Gly Ala Ile Pro Ser Ser Ile Trp Val
 675 680 685
 Val Ser Ile Ile Met Phe Arg Leu Ile Leu Leu Ile Leu Ser Val Val
 690 695 700
 Phe Val Phe Phe Arg Gln Val Ile Gly Asn His Leu Lys Pro Lys Gln
 705 710 715 720
 Glu Lys Met Pro Leu Ser Lys Ala Lys Thr Glu Gln Glu Glu Ser Lys
 725 730 735
 Thr Lys Thr Val Gln Glu Glu Ser Lys Thr Lys Thr Gly Gln Glu Glu
 740 745 750
 Ser Glu Ala Lys Thr Gly Gln Glu Glu Ser Lys Ala Asn Ile Glu Ser
 755 760 765
 Lys Arg Pro Lys Ala Lys Ser Val Lys Lys Gln Lys Lys
 770 775 780

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
oligonucleotide

<400> 17

caactaacgtg gttcattct ttg

22

<210> 18

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
oligonucleotide

<400> 18

caaatactgc aagtgagact tgc

23

<210> 19

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
oligonucleotide

<400> 19

tgcacaacta cgtgtggtgt accc

24

<210> 20

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:
oligonucleotide

<400> 20

gagcaatctg aatttctttt ttctttt

25

<210> 21

<211> 21

<212> DNA

<213> Artificial Sequence

<400> 21
aattgattgctc ttgcatgctc a 21

<210> 22
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
oligonucleotide

<400> 22
ctttcacgga gcccatgtag ttgcag 26

<210> 23
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
oligonucleotide

<400> 23
tgaaggagaa aacgcgcaga tgcagg 26

<210> 24
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 24
tcgataatgc atgaaggcaa cccacc 26

<210> 25
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: primer

<400> 25
cagatctcgc ttccatatt ttgcag 26

<220>

<223> Description of Artificial Sequence: primer

<400> 26

gactctgaatctatgcttct

1

<210> 27

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: primer

<400> 27

gacactctttt gctttggggtc g

21

<210> 28

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide
fragment

<400> 28

Asp Tyr Lys Asp Asp Asp Asp Lys

1

5

<210> 29

<211> 27

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide
fragment

<400> 29

Phe Asp Val Ala Ser Leu Ala Gln Gln Val Gln Ala Leu Gln Gly Gln

1

6

16

25

Val Gln His Leu Gln Ala Ala Phe Ser Gln Tyr

20

29

<210> 30

<211> 33

<220>

<223> Description of Artificial Sequence: peptide fragment

<400> 30

Arg Met Lys Gln Ile Glu Asp Lys Ile Glu Glu Ile Leu Ser Lys Ile
1 5 10 15

Tyr His Ile Glu Asn Glu Ile Ala Arg Ile Lys Lys Leu Ile Gly Glu
20 25 30

Arg

<210> 31

<211> 12

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide fragment

<220>

<223> "Xaa" at various positions throughout the sequence may be any amino acid

<400> 31

His Glu Xaa Xaa His Xaa Xaa Gly Xaa Xaa His Asp
1 5 10

<210> 32

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide fragment

<400> 32

Ser Gln Ser Gln Pro Pro Leu Met Pro
1 5

<210> 33

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: peptide

1400-33

Gln Gln Gln Ser Lys Xaa Lys Thr Gly

1

5